IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, [[double brackets]] are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims 6, 9, and 11 in accordance with the following:

1. (Previously Presented) An access control apparatus which processes a plurality of access requests to a storage medium, comprising:

a scheduling unit determining a deadline of reading and writing processing for the storage medium, based on a change of a transfer rate of data which is actually received, and setting an execution schedule for the plurality of access requests in descending order of deadlines; and

a control unit controlling execution of the access requests according to the execution schedule.

2. (Previously Presented) The apparatus according to claim 1, wherein

said scheduling unit determines the deadline of the reading process according to information about a deadline which is determined when the received data is written in response to read data from the storage medium.

3. (Previously Presented) An access control apparatus which processes a plurality of access requests to a storage medium, comprising:

a scheduling unit determining a deadline of an accessing process depending on a change of a data transfer rate, and setting an execution schedule for the plurality of access requests in order from a process having an earliest deadline; and

a control unit controlling execution of the access requests according to the execution schedule, and

wherein said control unit comprises a buffer unit for buffering only valid data excluding dummy data as write data in received data when said control unit receives a request to write data to the storage medium, and said scheduling unit determines a deadline of a writing process based on a time required by said buffer unit to buffer the valid data in a predetermined area.

4. (Original) The apparatus according to claim 3, wherein

said control unit controls information about the deadline of the writing process to be written in the storage medium together with the write data.

5. (Original) The apparatus according to claim 3, wherein

upon receipt of the request to read data from the storage medium, said control unit adds the dummy data to the read data based on a transfer order of the dummy data and the valid data when the read data is written.

6. (Currently Amended) An access control apparatus which processes a plurality of access requests to a disk type storage medium, comprising:

a determination unit determining a write position of data on the disk type storage medium in such a way that a plurality of write positions can be located close to each other in response to requests to write data into the disk type storage medium; and

a control unit controlling a process of sequentially writing data to [[the]]a write area on the disk type storage medium specified by each write request.

7. (Original) The apparatus according to claim 6, wherein

said determination unit determines the write area based on at least one of a number of the write requests and a total transfer rate of the plurality of write requests.

8. (Previously Presented) A method for controlling access in processing a plurality of access requests to a storage medium, comprising:

determining a deadline of reading and writing processing for the storage medium, based on a change of a transfer rate of data which is actually received;

setting an execution schedule for the plurality of access requests in descending order of deadlines; and

controlling execution of the access requests according to the execution schedule.

9. (Currently Amended) A method for controlling access in processing a plurality of access requests to a disk type storage medium, comprising:

determining a write position of data on the disk type storage medium in such a way that a plurality of write positions can be located close to each other in response to a plurality of requests to write data into the storage medium; and

controlling a process of sequentially writing data into [[the]]a write area specified by each write request.

10. (Previously Presented) A computer-readable storage medium storing a program used with a device for processing a plurality of access requests to a storage medium to direct a computer to perform:

determining a deadline of reading and writing processing for the storage medium based on a change of a transfer rate of data which is actually received;

setting an execution schedule for the plurality of access requests in descending order of deadlines; and

controlling execution of the access requests according to the execution schedule.

11. (Currently Amended) A computer-readable storage medium storing a program used with a processing device for processing a plurality of access requests to a disk type storage medium to direct a computer to perform:

determining a write position of data on the disk type storage medium in such a way that a plurality of write positions can be located close to each other in response to a plurality of requests to write data to the disk type storage medium; and

controlling a process of sequentially writing data into [[the]]a write area specified by each write request.

12. (withdrawn) An access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

a selection unit selecting a plurality of zones from the storage medium such that transfer speeds of the zones on the storage medium can be leveled; and

a control unit controlling data through the plurality of channels such that the data can be distributed and recorded in the plural selected zones.

13. (withdrawn) An access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

a selection unit selecting a plurality of zones having a transfer speed average higher than general request performance as a sum of data storage request performance of data of each channel from the storage medium; and

a control unit controlling data to be distributed and recorded through the plurality of channels to the selected plural zones.

14. (withdrawn) An access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

a selection unit selecting an outer zone having a larger storage capacity by priority when simultaneous record requests are received through a plurality of channels; and

a control unit controlling data to be recorded with the plurality of channels with concentration on the selected zones.

15. (withdrawn) An access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a storage medium in a land/groove system, comprising:

a determination unit determining land or groove on which the data of each channel is recorded one to one when simultaneous storage requests are received through a plurality of channels; and

a control unit controlling the data of each channel to be distributed and recorded through corresponding determined land or groove.

16. (withdrawn) The apparatus according to claim 15, wherein

when said storage medium is divided into logical zones having the land and the groove of a predetermined number of sectors, said control unit controls data through each channel to be distributed and recorded in logical zone units alternately on the land and the groove.

17. (withdrawn) The apparatus according to claim 16, further comprising:

a deletion unit deleting data of a channel from the land or the groove on which the data is recorded when a request to delete the data of the channel is accepted; and

a garbage collection unit moving data of another channel recorded on another land or groove associated with the land or the groove to a logical zone having an empty area for a rewrite operation.

18. (withdrawn) The apparatus according to claim 15, further comprising

a read unit reading data from the land or groove on which data of a channel is recorded when a request to read the data of the channel is accepted.

19. (withdrawn) A method for controlling a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

selecting a plurality of zones from the storage medium such that transfer speeds of the zones on the storage medium can be leveled; and

controlling data through the plurality of channels such that the data can be distributed and recorded in the plural selected zones.

20. (withdrawn) A method for controlling a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

selecting a plurality of zones having a transfer speed average higher than general request performance as a sum of data storage request performance of data of each channel from the storage medium; and

controlling data to be distributed and recorded through the plurality of channels to the selected plural zones.

21. (withdrawn) A method for controlling a process of simultaneously recording data through a plurality of channels in a storage medium whose revolution is controlled based on a ZCAV system, comprising:

selecting an outer zone having a larger storage capacity by priority when simultaneous record requests are received through a plurality of channels; and

controlling data to be recorded with the plurality of channels with concentration on the selected zones.

22. (withdrawn) A method for controlling a process of simultaneously recording data through a plurality of channels in a storage medium in a land/groove system, comprising:

determining land or groove on which the data of each channel is recorded one to one when simultaneous storage requests are received through a plurality of channels; and

controlling the data of each channel to be distributed and recorded through corresponding determined land or groove.

23. (withdrawn) A computer-readable storage medium storing a program for use with an access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a disk type storage medium whose revolution is controlled by a ZCAV system to direct a computer to perform the steps of:

selecting a plurality of zones from the disk type storage medium such that transfer speeds of the zones on the disk type storage medium can be leveled; and

controlling data through the plurality of channels such that the data can be distributed and recorded in the plural selected zones.

24. (withdrawn) A computer-readable storage medium storing a program for use with an access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a disk type storage medium whose revolution is controlled by a ZCAV system to direct a computer to perform the steps of:

selecting a plurality of zones having a transfer speed average higher than general request performance as a sum of data storage request performance of data of each channel from the storage medium; and

controlling data to be distributed and recorded through the plurality of channels to the selected plural zones.

25. (withdrawn) A computer-readable storage medium storing a program for use with an access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a disk type storage medium whose revolution is controlled by a ZCAV system to direct a computer to perform the steps of:

selecting an outer zone having a larger storage capacity by priority when simultaneous record requests are received through a plurality of channels; and

controlling data to be recorded with the plurality of channels with concentration on the selected zones.

26. (withdrawn) A computer-readable storage medium storing a program for use with an access control apparatus which controls a process of simultaneously recording data through a plurality of channels in a disk type storage medium in which data is recorded in a land-groove system to direct a computer to perform the steps of:

determining land or groove on which the data of each channel is recorded one to one when simultaneous storage requests are received through a plurality of channels; and

controlling the data of each channel to be distributed and recorded through corresponding determined land or groove.

27. (withdrawn) The storage medium according to claim 26, wherein:

when said disk type storage medium is divided into logical zones having lands and grooves of a plurality of number of sectors, said computer is directed to control data of each channel to be distributed and recorded in logical zone units alternately on a land and a groove.